A Perspective from Wildland Fire Communicators

For those natural resource management organizations charged with communicating about wildland fire, the public's perception of the risks associated with fire and its deeply rooted belief that "fire is bad" poses an immense communications challenge. This paper reports portions of a study that explored the current state of wildland fire communications in the United States from the perspective of wildland fire communicators (Clute, 2000). The study sought to ascertain how wildland fire management organizations can better communicate wildland fire messages in such a manner as to meet societal needs, address community needs/concerns, gain public support, and comply with organizational mandates, all while utilizing the best science and technology available. Specifically, it set out to identify the knowledge, attitudes, skills, and backgrounds of a population of natural resource professionals with wildland fire communication responsibilities. Also queried were both the opportunities and barriers they perceived in the course of conducting their day-to-day responsibilities. Utilizing this information as background, the usefulness of the National Wildfire Coordinating Group (NWCG)'s wildland fire message themes was explored.

Background

Wildland fire management organizations, such as the U.S. Departments of the Interior and Agriculture, are trying to "place more emphasis on educating internal and external audiences about how and why we use and manage wildland fire" (USDI & USDA, 1995, p.iv). This is not an easy task for there are many barriers to such an endeavor—not the least of which is the attitude of the American public. Over the years, researchers have identified numerous public concerns and barriers to the acceptance of wildland fire in America's ecosystems. Specifically, these include:

- the risks of fire, especially the possibility of its causing damage to valued assets (DeBano et al., 1998; Hall, 1972; Jacobson, 1999; Shindler, 1997; Taylor and Mutch, 1986);
- emissions from fire, including the health and aesthetic effects of smoke (Omi and Laven, 1982; Shelby and Speaker, 1990; Shindler, 1997; Taylor and Mutch, 1986; Winter and Fried, 2000);
- aesthetic impacts on the landscape (Hall, 1972; Jacobson, 1999; Shelby and Speaker, 1990; Shindler, 1997; Taylor and Daniel, 1984);
- economic losses, mainly to forestry-related activities (Hall, 1972; Shindler, 1997);
- impacts on the ecosystem, including wildlife (Cortner et al., 1984; Hall, 1972; Jacobson, 1999; Shelby and Speaker, 1990; Shindler, 1997);
- confused, disjointed or uncoordinated "messaging" about suppression, and/or the inaccurate interpretation of prevention messages (Jacobson, 1999; Omi and Laven, 1982; Shelby and Speaker, 1990; Taylor and Mutch, 1986); and
- the lack of a consensus among "experts" regarding the use of fire (Glasscock, 1972; Shelby and Speaker, 1990).

Wildland fire communicators serve as intermediaries between organizations which are responsible for message development and the public(s) to whom the message is directed. Their role is critical in both helping to develop and to deliver the message(s) intended to address the public's lack of knowledge and concerns regarding wildland fire management.

Data Collection and Methodology

The data for this study were obtained from 321 responses to a 13-page questionnaire completed during the summer of 2000 by natural resources professionals working in governmental and non-governmental organizations in 47 states and the District of Columbia. The questionnaire was developed utilizing the results of an e-mail administered Delphi instrument and needs assessment of fifteen wildland fire communicators that focused upon the roles of wildland fire communicators, the organizations employing them, and the target audiences to whom wildland fire information is directed. Questionnaire development also drew upon relevant themes identified in the literature.

The Delphi method employs a group of experts at varying locations who provide input through an anonymous, multi-stage, iterative questionnaire process. It has been described as a "qualitative, long-range forecasting technique, that elicits, refines, and draws upon the collective opinion and expertise of a panel of experts" (Gupta and Clarke, 1996, p. 185). Needs assessment is used to assess the needs of a defined population using "a systematic set of procedures undertaken for the purpose of setting priorities and making decisions about program or organizational improvements and allocation of resources" (Witkin and Altschuld, 1995, p. 4). Needs are defined as discrepancies or gaps between "what is" and "what should be" (Witkin and Altschuld, 1995).

Concepts of social marketing were used as a reporting framework in the data analysis phase. Weinreich (1999) defines social marketing as the "use of commercial marketing techniques to promote the adoption of a behavior that will improve the health or well-being of the target audience or of society as a whole" (p. 3). Social marketing's primary focus is on the consumer and on learning what people want and need, rather than trying to persuade them to buy what is being produced (Weinreich, 1999). Many writers have described some form of mnemonic technique use to remind marketers of the principles underlying their marketing efforts. For example, in commercial marketing there are the 4Ps of product, price, promotion, and place that are regularly referred to as the four important aspects of the marketing process that must be well understood and combined in the correct proportions in order to successfully market products or services (Kotler and Armstrong, 1991). With the development of social marketing, there has been an attempt made to expand upon the 4Ps. Fine (1990) suggested the 7Ps of social marketing as being producer, purchaser, product, price, promotion, place, and probing.

Results and Conclusions

A number of conclusions can be drawn from the study. Those who participated in the study reported being well-educated, experienced, have a generally positive attitude, valued teamwork, saw more opportunities than barriers to their efforts, and have a relatively high perception of their knowledge and skills with respect to the organization for which they worked, its mission or mandate, and its role in wildland fire management. Participants reported perceiving significant opportunities for natural resource organizations to build upon their stated commitment of enhancing wildland fire communications. This goal can be accomplished by demonstrating "a commitment" to the public and to a dedicated staff through the allocation of additional resources—both financial and human—and by undertaking planning to meet future needs.

Wildland fire communicators both require and desire additional training. Their lowest perceived knowledge and skill levels relate to communications activities, such as identifying target audiences, developing communication plans and products, and using evaluative feedback. Particularly needed is additional training in ways to evaluate existing

communications' processes and products and develop new ones. Such training is imperative if greater reliance is to be placed on wildland fire communicators and if their role is to be other than a reactive one. Initiating such activities, starting with wildland fire communicators employed in those areas with high fire regimes, but eventually including all communicators, would be desirable and welcomed.

Recognizing that members of the public have limited knowledge of wildland fire, there also is a need for improved and better coordinated messaging directed to them. According to the study participants, a single national wildland fire message with regionally focused and developed subcomponents was reported as the preferred approach to wildland fire communication. Starting with the NWCG messages, it is essential to clarify, simplify, and promote the messaging that is undertaken.

Little has been done to identify or begin to understand the target audience(s) for wildland fire communications. Additional study is required to define those audiences if public education is to be successful, thereby engendering additional support for the reintroduction of wildland fire into America's ecosystems.

Finally, there is an ongoing need to ascertain how wildland fire management organizations can better communicate wildland fire messages in such a manner as to meet societal needs, address community needs/concerns, gain public support, and comply with organizational mandates, all while utilizing the best science and technology available.

Implications for Wildland Fire Communicators

- Learn about your target audiences' knowledge, attitudes, concerns, and needs about wildland fire and its management—try thinking of communicating about wildland fire as conveying information to fulfill your target audiences' needs and wants.
- Incorporate evaluation into all of your communication activities and products. Evaluative feedback should be thought of as a continually occurring process to provide information for communication product revisions and for future communication product development.
- Be creative in your approach to wildland fire communication. Why communicate in the same manner you have been if you are getting little "value" for your efforts? Think like the members of your target audiences, and make obtaining wildland fire information worthwhile and easy for them.
- Develop generic, yet flexible, wildland fire information packets for different target audiences, such as homeowners, media, etc. Prepare these products for everyday use, but particularly for times of high fire risk when demands upon you will be the greatest given your audiences' increased interest in wildland fire.
- Collaborate—especially with other wildland fire communicators and organizations. But do not forget about other important stakeholders outside the field of natural resources, such as non-governmental organizations, business associations, and local citizens' groups.
- Help to reduce wildland fire jargon by using easy to understand, commonly used language and terminology. Interpret the science of fire and fire management.
- As one communicator observed in the study, "The public does not like to be surprised by wildland fire!" Therefore, keep your "customers" informed about wildland fire and its management. Address your target audiences' needs and wants in a timely manner.

References

Clute, K.P. 2000. A Study of Wildland Fire Communications. M.S. Thesis, School of Natural Resources, The Ohio State University.

Cortner, H.J., M.J. Zwolinski, E.H. Carpenter, and J.G. Taylor. 1984. Public Support for Fire-Management Policies. *Journal of Forestry* 82:359-361.

DeBano, L.F., D.G. Neary, and P.F. Ffolliott. 1998. *Fire Effects on Ecosystems*. New York, NY: John Wiley & Sons, Inc.

Fine, S.H. 1990. *Social Marketing: Promoting the Causes of Public and Nonprofit Agencies*. Boston, MA: Allyn and Bacon.

Glasscock, H.R. 1972. Forces shaping public opinion toward fire and the environment. In *Symposium Proceeding, Fire in the Environment*. Denver, CO: Forest Service, U.S. Dept. of Agriculture.

Gupta, U.G. and R.E. Clarke. 1996. Theory and Application of the Delphi Technique: A Bibliography (1975-1994). *Technological Forecasting and Social Change* 53:185-211.

Hall, A.D. 1972. Public Attitudes Toward Fire. In *Fire in the Environment Symposium Proceedings*. Denver, CO: Forest Service, U.S. Dept. of Agriculture. FS-276. pp. 57-63

Jacobson, S.K. 1999. *Communication Skills for Conservation Professionals*. Washington, DC: Island Press.

Kotler, P. and G. Armstrong. 1991. *Principles of Marketing*. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Omi, P.N. and R.D. Laven. 1982. *Prescribed Fire Impacts on Recreational Wildlands: A Status Review and Assessment of Research Needs*. Eisenhower Consortium for Western Environmental Forestry Research. Bulletin 11.

Shelby, B. and R.W. Speaker. 1990. Public Attitudes and Perceptions about Prescribed Burning. In J.D Walstad, S.R. Radosevich, and D.V. Sandberg (Eds.), *Natural and Prescribed Fire in Pacific Northwest Forests*. Corvallis, OR: Oregon State University Press. p. 253-260.

Shindler, B. 1997. Public Perspectives on Prescribed Fire and Mechanical Thinning. Technical Notes from the Blue Mountains Natural Resource Institute. BMNRI-TN-9. July 1997. Available on-line at http://www.fs.fed.us/pnw/bmnri/pubs/tn9.pdf

Taylor, J.G. and T.C. Daniel. 1984. Prescribed fire: Public education and perception. *Journal of Forestry* 82: 361-365.

Taylor, J.G. and R.W. Mutch. 1986. *Fire in Wilderness: Public Knowledge, Acceptance, and Perception*. Ogden, UT: National Wilderness Research Conference, USDA Forest Service, Intermountain Research Station. INT-212.

United States Department of the Interior and United States Department of Agriculture. 1995. Federal Wildland Fire Management Policy and Program Review: Final Report.

Weinreich, N.K. 1999. *Hands-on Social Marketing: A Step-by-Step Guide*. Thousand Oaks, CA: Sage Publications.

Winter, G. and J.S. Fried. 2000. Valuing the Social and Economic Impacts of Fire at the Urban-Wildland Interface: A Statistical Summary of Survey Responses. Michigan State University Department of Forestry Project Report, USDA Forest Service Cooperative Agreement 239332. Available on-line at http://jeremy.msu.edu/pubs/snr98/index.htm

Witkin, B.R. and J.W. Altschuld. 1995. *Planning and Conducting Needs Assessments: A Practical Guide*. London, UK: Sage Publications.

Author: Kevin Clute

Public Perceptions and Attitudes Toward Wildland Fire

One of the fundamental principles of this *Communicator's Guide* is to learn about your audience before you communicate your message. The role of learning about your audience's perceptions and attitudes becomes more difficult as your audience grows in size. For wildland fire communicators in the United States, determining the perceptions and attitudes of a group of millions of people with widely diverse cultures, backgrounds, and experiences is a very challenging task. In many portions of the country, public perceptions and attitudes of wildland fire differ. However, no matter where your location, the themes presented in this section should provide a solid foundation for future investigation. To build on that foundation you must investigate the specific characteristics of the public in your geographic area. With this knowledge you will better understand your audience and the challenges that lie ahead as a fire communicator. This section of the *Communicator's Guide* provides a useful starting point and an overall view of the public perceptions and attitudes of wildland fire in the United States.

You may be asking yourself, "why are the perceptions and attitudes of the public a concern in my particular line of work?" Perceptions and attitudes are crucial because the public is the major supplier, consumer, and stakeholder in the issues you deal with each day. In most cases, the public provides the main source of funding for the majority of research, management, education, and employment opportunities in the wildland fire field. Much of the money used to drive the wildland fire field is generated through public tax dollars. The importance of the public does not stop with the idea that they are the ones funding the system; they are also the ones utilizing the system. These taxpayers are also the same individuals who request information regarding your organization's fire management policies and practices. In addition, the public are major stakeholders in the wildland fire field. These stakeholders own property and structures that could be consumed by fire. They also reside in wildfire prone areas, and trust wildland fire managers to implement management policies and techniques to protect their family and friends. It is therefore important that each time you see the word "public" you realize just how much of a stake the public has in the management of wildland fire. Finally, it is important to remember that the attitudes and perceptions held by the public provide future direction for wildland fire policy. If wildland fire programs do not receive public support, government officials may be willing to alter present wildland fire policies. It is for all of these reasons that we consider the public to be providers, consumers, and ultimate stakeholders, and it is our responsibility to communicate the wildland fire message to them.

In general, the public has been slow to accept fire as a legitimate wildland fire management tool for many reasons. One of the most significant reasons is because of the past message of fire suppression from those responsible for ecosystem management. This suppression message began back in the early 1900s when the United States Forest Service initiated the policy of extinguishing all forest fires. This policy was strengthened in 1935 when the U.S. Forest Service tried a continent-wide experiment called the "10 a.m. policy" (Pyne et al., 1996). This policy required managers to extinguish all wildland fires by 10 a.m. on the day following their ignition. This heavy-handed approach to suppress fire was packaged to the public along with education. Through long-term government educational campaigns the idea of immediate suppression endured. The icon for this suppression policy was first developed by the Wartime Advertising Council in 1944, and later updated by the U.S. Forest Service (Fuller, 1991). Smokey Bear and his message of "only you can

prevent forest fires" impacted individuals of all ages. With Smokey's help, agencies responsible for fire management had soon gained almost unanimous support for the immediate suppression of all fires.

During the 1960s and 1970s the development of the environmental movement gave rise to the idea that total wildland fire suppression may be harmful to the ecosystem. During this same time, research found that people preferred naturalness in wildlands, including naturally occurring woody debris. Yet, the same research found that the public disliked the same woody debris if it had been caused by commercial logging activity (Shelby and Speaker, 1990). In order to remedy these two situations, researchers in the late 1970s stressed using "prescribed fire" as a method of protecting, maintaining, and enhancing forest resources while reducing unsightly logging debris. From the success of these early trials, forest managers and researchers soon learned the benefits of re-introduced fire upon ecosystems where it had been suppressed.

Since those early fire re-introductions through the use of prescribed fire, the public's knowledge about prescribed fires has increased greatly. However, the management options of the past have still caused confusion for the public at times. One of the reasons for this confusion is a result of Smokey Bear. A 1989 survey found that 71% of children aged 5–13 could recognize Smokey Bear and his message based upon fire suppression (Fuller, 1991). However, during this same period many fire managers were not talking about suppression, but rather terms like "natural fire policy" or "let burn" management. The idea of two seemingly contradictory management techniques provided mixed messages for the public and thus created confusion. A good example of this confusion is illustrated by the public's perceptions and attitudes during the 1970s. During this time, the public had mixed attitudes regarding the ways of managing wildland fire and ecosystems. One of the main factors that helped to resolve the public's confusion about wildland fire was education. The results of this education are well illustrated by the changing public attitudes and perceptions over the last 30 years.

In 1971, a study tested visitors on their knowledge of fire's effects upon the ecosystem in Montana's Selway-Bitterroot Wilderness (Stankey, 1976). Results of the true/false test indicated that the average visitor could only identify about half of the statements that related to fire's effects upon the ecosystem. The most interesting theme to arise out of this study was that greater fire knowledge relates to increased support for decreased fire suppression activities.

In 1976, another survey found that over half of respondents agreed that occasional fires were an important part of ecosystem renewal (Folkman, 1979). Yet, of those same Los Angeles and San Francisco residents, about 75% agreed that naturally ignited fires should not be allowed to burn even if they did not endanger human life or property. Slightly more than three-quarters of surveyed residents in Los Angeles and San Francisco also agreed that it is important for government agencies to suppress fire as soon as possible after ignition, no matter where the fire is located. In other words, even though people knew the importance of occasional fires, they still felt that immediate suppression of fire was important. A similar study conducted in Olympia National Park in 1978 illustrated this conflict between increased awareness about the benefits of fire and the support for fire suppression. About 70% of visitors to the National Park could correctly define the practice of prescribed burning and understood the beneficial effects of fire, yet nearly 65% still wanted fires controlled at all costs (Rauw, 1980).

By the early 1980s, researchers in the human dimension side of wildland fire observed a shift in

public attitude towards less suppression and greater acceptance of fires as a natural part of the ecosystem. A survey conducted in 1981 found that two-thirds of people in Tucson, Arizona, knew about fire's beneficial effects upon the ecosystem (Zwolinski et al., 1982). Of the sample population studied, 84% had heard of prescribed burning and, more surprisingly, 80 percent in this group approved of the practice. During this time, other researchers noted a similar shift in perceptions and attitudes toward wildland fire. During the mid-1980s the trend of increased acceptance of fire as a natural and acceptable part of the ecosystem continued to gather support. McCool and Stankey (1986) returned to the Selway-Bitterroot Wilderness to re-sample visitors about their perceptions and attitudes towards wildland fire. In that thirteen-year period, the public had grown more knowledgeable about fire's effects, and gained an average overall score of 64% on their true/false test compared to 53% scored in 1971. The researchers also found that seven out of ten visitors supported letting fires burn in wilderness areas compared to 38% in 1971. In addition, the relationship between increased fire knowledge still translated into increased acceptance of less restrictive fire management policies. The research by Stankey (1976) and later by McCool and Stankey (1986) in the same study area illustrates a good example of the trend of increased support for alternative fire management options during the 1970s and 1980s.

Finally, in 1985, a milestone was reached by a study surveying visitors' attitudes and perceptions of wildland fire policy in Frank Church River of No Return Wilderness (Patton and Oliver, 1985). Researchers in this study found that not a single visitor preferred a suppression-only wildland fire policy. Education about the benefits of fire's reintroduction into the ecosystem and the role of fuel management had gathered enormous momentum. The period had come when through education the public had rejected a single-minded approach to the management of wildland fire. Education about wildland fire had finally accomplished the task of rejecting suppression as the sole management option, at least in this study sample. Today, each wildland fire management technique, whether prescribed fire or suppression, has a correct time and place. Believing too strongly in one management option, such as prescribed fire, is irresponsible since each management option is a tool for a specific situation. Each situation must be carefully analyzed to determine the best management tool for the desired outcome.

For a wildland fire communicator, any shift in the public's attitudes and perceptions toward acceptance of an array of wildland fire management options is of great importance. The reason for this importance is because there is no longer one answer regarding how to manage wildland fires, a luxury our predecessors may have had. Therefore, a wildland fire communicator must be able to educate the public on a number of different wildland fire management techniques and policies that are relevant to a particular area. As a fire communicator, you must be knowledgeable about numerous facets of the wildland fire field, both pros and cons, in order to increase public understanding.

The public's attitudes and perceptions tend to shift with events. For example, now in midsummer 2000, the effect of the Cerro Grande (Los Alamos) fire on public opinion is being closely monitored. In order to effectively educate the public, the wildland fire communicator must be aware of these changes. Otherwise, the communicator's message may be outdated or even unnecessary. The process of determining public attitudes and perceptions is dynamic. It is therefore your responsibility as a wildland fire communicator to be aware of your audience and their perceptions and attitudes before communicating your message. With this accom-

plished, you are in a better position to effectively and efficiently reach your audience, and in the process, become a better wildland fire communicator.

References

Carpenter, E.H. et al. 1986. Targeting audiences and content for forest fire information programs. *Journal of Environmental Education* 17(3):33-41.

Cortner, H.J. et al. 1984. Public support for fire management policies. *Journal of Forestry* 82:359-361.

Cortner, H.J., P.D. Gardner, and J.G. Taylor. 1990. Fire hazards at the urban wildland interface: What the public expects. *Environmental Management* 14(1):57-62.

DeBano, L.F., D.G. Neary, and P.F. Folliott. 1998. *Fire's Effects on Ecosystems*. New York: Wiley and Sons, Inc.

Folkman, W.S. 1979. Urban users of wildland areas as forest fire risks. USDA Forest Service research paper, Berkley, CA. 22 pp.

Fuller, M. 1991. *Forest Fires*. New York: John Wiley and Sons, Inc.

Gardner, P.D. and H.J. Cortner. 1985. Wildland-urban fires in semi-arid environments: A southern California study of homeowner perceptions and public policy preferences. In O. Templer (Ed.), *Forum of the Association for Arid Lands Studies, Proceedings of the Annual Meeting*. Texas Tech University, International Center for Arid and Semi-Arid Land Studies, Lubbock, TX. pp. 129-133.

Manfredo, M.J., M. Fishbein, G.E. Haas, and A.E. Watson. 1990. Attitudes towards prescribed fire policies. *Journal of Forestry* July. pp. 19-23.

McCool, S.F. and G.H. Stankey. 1986. Visitor attitudes toward wilderness fire management policy—1971–84. USDA Forest Service research paper INT-357, Ogden, UT. 7 pp.

Nielsen, C. and T. Buchanan. 1986. A comparison of the effectiveness of two interpretative programs regarding fire ecology and fire management. *Journal of Interpretation* 2(1):1-10.

Patton, T. and M. Oliver. 1985. Frank Church River of No Return Wilderness Fire Management Plan, final draft. USDA Forest Service, Washington, DC. 194 pp.

Pyne, S.J., P.L. Andrews, and R.D. Laven. 1996. *Introduction to Wildland Fire*, second edition. New York: Wiley and Sons, Inc.

Rauw, D.M. 1980. Interpreting the natural role of fire: Implications for fire management policy. In *Proceedings of the 6th Conference on Fire and Forest Meteorology*. Washington, DC: Society of American Foresters. pp. 228-233.

Stankey, G.H. 1976. Wilderness fire policy: An investigation of visitor knowledge and beliefs. USDA Forest Service research paper INT-180, Ogden, UT. 17 pp.

Taylor, J.G. and T.C. Daniel. 1984. Prescribed fire: Public education and Perception. *Journal of Forestry* 82:361-365.

Taylor, J.G. et al. 1986. Recreation and fire management: Public concerns, attitudes, and perceptions. *Leisure Sciences* 8(2):167-187.

Shelby, B. and R.W. Speaker. 1990. Public attitudes and perceptions about prescribed burning. In, Walstad, J.D., S.R. Radosevich, and D.V. Sandberg (Eds.), *Natural and Prescribed Fire in Pacific Northwest Forests*. Corvallis, OR: Oregon State University Press. pp. 253–260.

Zwolinski, M.J. et al. 1982. *Public support for fire management policies in recreational land management*. Tucson, AZ: University of Arizona, School of Renewable Resources. 160 pp.

Author: Kevin Clute

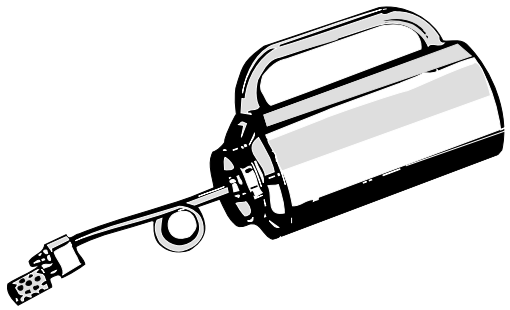
Wildland Fire—A Tool for Stewardship

Wildland fire communicators are charged with helping a variety of audiences understand the role of wildland fire. With a society that has been taught that all fire is bad and that suppression is our only option, the communicator's task is not an easy one.

The communicator's message must range from basic resource management to very detailed fire ecology concepts. Message complexity must match the objective(s) of the intended message, the audience, and the setting, both physical and institutional.

The message begins with both unplanned wildland fire and prescribed fire as background. Wildland fire, whether natural occurrence or human-ignited, is either attacked (containment or suppression) or permitted to burn under a predetermined management plan. Prescribed fire, fighting fire with fire, is the deliberate ignition of wildland fire to achieve established resource management objectives. Prescribed fire and the use of natural occurring fire as tools of management (i.e., stewardship) are the more complex messages. Helping your audience understand the concept of prescription (planned) fire is central to sound management.

These prescriptions are objective oriented — fuel load reduction, regeneration of select plant species that are fire dependent, or the enhancement of certain wildlife habitat. Most often though, returning fire to a fire dependent natural community accomplishes multiple objectives. Collectively the outcomes are manifested as overall natural community health and maintenance of natural fuel loading—both key themes or storylines for your messages.



Prescribed fire is a well-established practice on public and private lands throughout the world. Resource managers are diligent, and must be portrayed as such, in the planning of prescribed fire. Each plan is targeted for specific outcomes with the utmost care taken to protect human life and property, manage impacts of smoke, protect historical and archeological resources, and protect the ecological integrity of the physical and biological resources.

By carefully calculating meteorological factors, fuels, slope of land, and other relevant conditions, resource managers can control and direct their fires. Their charge is to ignite, hold, monitor, and extinguish their prescribed fires. The extensive bodies of knowledge of wildland fire science and wildland fire ecology provide excellent theoretical grounding and standards of practice for those charged with this stewardship burning. The science behind the flames also serves to underpin the communicator's message. Because the American public highly values and supports science, the crafting of wildland fire in the context of science increases the chances of message acceptance and impact.

Fire tragedies and extensive fires as seen in Florida, Mexico, and elsewhere in 1998 brought the issues to the forefront of national and international news. Likewise, prescribed fires such as Cerro Grande in 2000 that could not be controlled made headlines. All too often the news reports are restricted to tight time slots and sound bites. However, there are windows of opportunity for opening in-depth dialogues with our clientele and audiences about the need to reduce hazardous fuel accumulations and restore certain fire-dependent ecological processes. Audiences need to understand that an immediate need exists in many places around the world to reduce fuel load to prevent extreme fires and to both restore and maintain the health of fire-

dependent ecosystems. The reduction or treatments include manual, mechanical, biological, and chemical methods in addition to fire.

While most prescribed burns are relatively small, the plan for periodic burning must be made and presented to the public as strategic landscape-scale plans to restore health and vigor to vast regions. Often this is the primary reason for prescribed fire. To do this requires addressing (1) the excess of naturally occurring fuels and fuel accumulation as a result of land use/land settlement patterns, (2) historical fire suppression, and (3) fire-dependent ecological processes. Messages must convey that wildland fire is very much an anthropogenic problem and that both human interventions and human acceptance of naturally occurring fire are often the best solution, but they are not panaceas.

However, wildland fire management effectiveness is dependent on institutional support and cooperation as well as public understanding and support. Sound fire management science and an extensive understanding of fire ecology exists. Thus the communicator's role includes inter- and intra-agency communication and leadership. If support and coalescence of support from within are not evident, public opinion, and in turn political support, may wane.

Public support is not only required for the concept of wildland fire management but also for institutional support. While this is not a dominant message, audiences need to understand that stewardship of the land, including wildland fire management, requires resources. In situations where organizations are downsized and real dollars are reduced, as well as caps placed on numbers of seasonal employees, these organizations are stressed to meet the competing demands for immediate suppression, long-term needs for fuel load reductions, and other fire-related stewardship activities.

Overshadowing all of the needs and arguments is the risk factor — the risk that a prescribed fire will escape as it did in Cerro Grande in 2000. While land management agencies find the issues of an unplanned fire moving from public lands to private lands controversial enough, an escaped prescribed fire is a public relations challenge as well as a real potential threat to life and property.

Those who are communicating wildland fire messages and are engaged in sustainable community planning are in great part using risk communications. Central to public understanding is conveying risk management options. While prescribed fire is one of the higher risk land management activities, negative impacts have been minimal on a national scale. At the heart of risk management and communications are effective planning, highly trained professionals, and effective policies to reduce risk. These are the tenets found within wildland fire management guidelines.

Unfortunately the impacts and public perception of escaped prescribed fire either from poor planning or from uncontrolled events are the same. Thus internal communications and training must prepare managers for the risk associated with prescribed fire.

In the face of these risks, the American public appears to be showing a shift in attitude towards the use of more natural fire as a tool of stewardship. While we have only begun to impact ecosystem health by returning natural fire to fire-dependent ecosystems, so have we only begun to impact public opinion. A concerted effort is needed on both fronts.

Author: Gary W. Mullins

Smokey and Prescribed Fire: Conflicting Messages?

Smokey Bear, perhaps one of the best known icons in the United States, represents one of the most successful social marketing initiatives in the world. Partners from the state forester and local elementary school teacher to the National Advertising Council have teamed to help save our natural resources from accidental fire. "Only you can prevent forest fires" drives home a nation's responsibility for protecting against fire danger.

But … "Mommy look, that ranger is setting the grass on fire" is a statement that could be heard as the family car drives past a prescribed burn. Therein lies the mixed message—often driven by the misperception that all fire is bad. As communicators, how do we address this issue of communicating that prescribed burns are appropriate?

Just as it is illegal for us to speed, emergency vehicles speed daily. Emergency vehicle drivers convey to the public, through flashing lights and sirens, that speeding is acceptable in emergency situations. Note that their action is accompanied by a signal (message) recognized and approved by society.

Wildland fire managers must adhere to the same principle—when you burn you must provide society with an understandable and socially acceptable message. Driving through many parks and forests, the visitor may encounter a roadside sign that says, "Prescribed Burn Today." A brochure to hand out to passersby, such as NPS's "Wildland Fire in National Parks" advises the reader why the burn is occurring.

We must continue to effectively utilize fire prevention education. Smokey is as relevant today as ever. On the other hand, we have ascribed to no fire or reduced fire in natural systems so long that we now have a tremendous buildup of fuel. That fuel must be managed to reduce the danger of catastrophic fire. The wildland manager must foster a partnership between Smokey and the drip torch; both are tools to be used and interpreted for our audiences.

Author: Gary W. Mullins

Communication Planning for Wildland Fire Messages

"Everyone in the organization is responsible for communicating fire messages" is a case often made. However, this admonition does not relieve organizations of the responsibility for planning their communications. Everyone having responsibility is a "shotgun" approach. But ecological communications planning is targeting specific messages to a specific audience for a specific response. Both communication approaches are important, as communication plans are part of overall strategic planning. Those who "fail to plan, plan to fail" states the much used, but true, adage. Systematic communication planning is required in order for wildland fire messages to become heard, acted upon, and impact policy and practice.

Currently wildland fire communication, other than prevention, is a site-by-site or state-by-state activity with a limited national-scale communication initiative. For integrated wildland fire management to be understood, appreciated, and supported by the American public(s) it will require the same level of commitment as has been given to prevention.

Over 100 years of prevention messages, and high name and message recognition, have made major impacts in fire prevention. This 100-year history, combined with public perceptions that generally view fires as bad and our long-standing suppression fire policy, has left us a fire-starved nation. The lack of natural fire is being addressed through prescribed burning and other fuel load reduction initiatives. When fire is prescribed, the issue of "not in my backyard" often impedes the efforts of the wildland fire manager. As wildland-urban interface areas continue to expand, the complexity of wildland fire management will only become more difficult.

Communication planning for wildland fire management is not a panacea but is one more critical tool to aid in building a nation of ecologically literate people, including leadership at all levels that understands and supports wildland fire management practices. While few users of this *Guide* will have responsibility for national campaigns, most of us can influence wildland fire communication planning at the local or regional landscape level. Out of these grassroot planning exercises comes impetus for more national efforts.

The Process

Communications planning is a process yielding a product. That product is not static. Instead of a linear process, communication is circular, constantly providing new knowledge for changing the planned action as shown in Figure 1.

Each step is based on the preceding steps. When properly planned, delivered, and evaluated, wildland fire communication plans greatly improve managers' chances of attainment of communication objectives. Without a systematic approach, wildland fire messages will be randomly scattered with little chance for meaningful impact and feedback. Without feedback we will be forced to continue to deal with

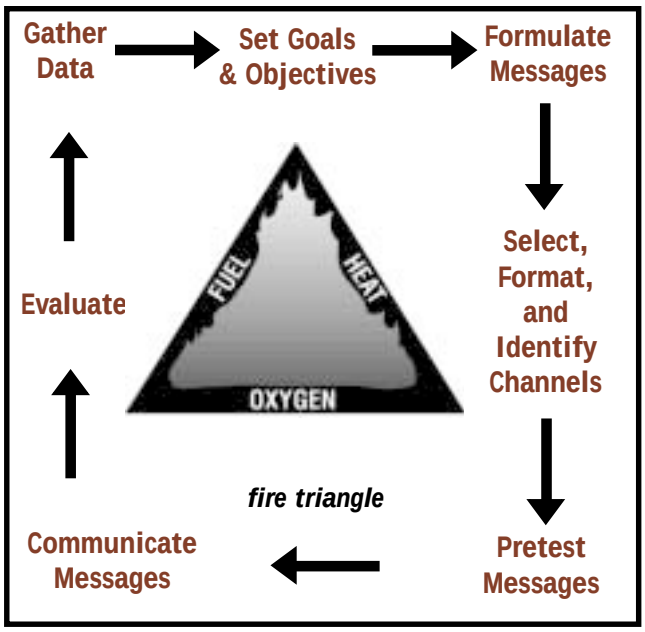


Figure 1. A communication planning model.

fire on two fronts, i.e., fire in excessive fuel-loaded ecosystems and "fire" from publics who do not understand and/or accept the need for a change in wildland fire management policies and practices.

Just as each of us learn to communicate at an interpersonal level, we must learn the process of targeted communications, be that large or small group communications or mass communications. In its most basic form, communication is the flow of information between sender and receiver, each acting on and reacting to new information. Ecological communication, a term used to capture the full range of communication strategies wildland fire organizations must embrace, is a very planned, systematic effort intended to effect change in the listener.

Wildland fire communications has multiple dimensions that must be considered in the early stages of planning. Most notably are:

- Wildland fire is a complex topic. It covers the breadth of subject matter — chemistry, physics, meteorology, ecology, management, economics, ethics, education, law, etc. Simply reducing it to a fixed argument of the "science of" will not serve the communicator well.
- Wildland fire has numerous technical dimensions. Not only are we faced with communicating the science of wildland fire, we must also convey the idea that fire is not totally predictable or controllable. Each fire burns differently and as meteorological factors change, the nature of the fire changes. Thus, trying to help audiences understand fire from a "static model" perspective should be avoided.
- Fire impacts people personally. It can be frightening; fire can destroy life and property. People personally experience fire after seeing in mass media their familiar landscapes burn. Even when we know that the land will rejuvenate, the change is disruptive to our psyche. Whether impacts are real or perceived, we are personally impacted by the fire event.
- Wildland fire, even within the best prescriptions, contains risks as was manifested in the fire that threatened Los Alamos in 2000. While risk has been mitigated by the advances in wildland fire management science and fire ecology, the perception of risk still exists when we see fire in wildlands. Wildland fire communicators are risk communicators and therefore must frame their messages as risk communications.

All ecological communications must seek to bring together ecological, political, economic, and social perspectives. While ecological knowledge is based on experimentation, adaptation, and model building, economic, political, and social perspectives have a high element of human values attached. Bringing the best scientific knowledge available (at that point in time), and society's perspectives on that knowledge, requires concerted communication efforts. While scientists may agree on how data are collected and merged to form information, society, in general, may question them. Our audiences often question the "wisdom" of decisions in that cultural groups move from data to information to knowledge to wisdom. Wisdom is a long-term process of accumulation and testing of knowledge over time.

However, issues such as wildland fire management require a more immediate response. Fortunately we are trying to move to reestablish a more natural fire regime; hunter-gatherer societies long held the wisdom that these natural regimes sustained their way of life. Drawing on those arguments of wisdom may be helpful to an extent but we are still faced with the proliferation of expanding wildland–urban interface zones and the perceived risk of fire in our backyards. Certainly there are no easy answers or "silver bullet formulas." At minimum, we can seek to engage, inform, and educate our colleagues and clientele.

Because wildland fire is a landscape scale phenomenon, it must be addressed in an ecosystem context. That context views people as an integral part of the system. To communicate within this context requires acceptance of three tenets. The tenets state that the level of acceptance and implementation is related to:

1. The flow of information into and out of partnerships, stakeholder groups, communities of place (residents), and communities of interest.
2. The ability of the ecosystem leadership to foster change that reflects the sentiments of partners, stakeholders, and communities of place and interest (persons with a vested interest).
3. The degree of consensus developed among partners, stakeholders, and communities of place and interest.

The aforementioned concepts and tenets are to be reflected in communication planning.

Steps to Planning

Figure 1 provides one graphic among many representations of the steps to communication planning. Other models may show more or fewer steps, various paths that converge then split again, or use different terminology. Each planning model is based on whether the model maker is a "lumper or splitter" and the preference for specification. Almost all communication planning models are based on the idea of "analysis to synthesis to conclusion." Major problems that occur in model building and on-the-ground implementation are:

- incomplete attention to each step,
- the failure to feed new knowledge back into the system (adaptive management),
- an overemphasis toward turning out a product rather than managing a process, and
- inattention to formal evaluation.

Greater attention to these problem areas can strengthen planning.

Each of the following steps to communication planning are discussed in turn: 1. Gather Data, 2. Set Goals and Objectives, 3. Formulate the Message, 4. Select Format and Identify Communication Channels, 5. Pretest the Message, 6. Communicate the Message, and 7. Evaluate.

I. Gather Data

It is human nature to create a product and take action immediately. Communication planning does not lend itself to this predisposition. Wildland fire managers must be as meticulous in communications planning as they are in prescribed fire planning. Just as inadequate meteorological data can result in a prescribed fire becoming a conflagration, incomplete data in the communications plan can turn a communications effort into a public relations nightmare. The challenge in both is to provide time and resources to conduct the background data gathering, i.e., "doing the footwork" before embarking on an effort. The best laid plans in wildland fire management inherently have enough risk without inclusion of poorly planned communication effort.

The data to be gathered fall into a number of general categories, but each situation (ecosystem) will have somewhat different data needs. Categories of data to gather typically include:

- Audience Analysis—General
- Social and Psychological Data
- Political Data
- Economic Data
- Organization Data
- Ecological Data

One can collect extensive data within each set. The question is to collect usable data that provide pertinent information for decision-making. Data

needs are often framed in questions so that data generated tend to inform, i.e., become information, rather than static info-bits. The thesis of the entire communications planning approach is to move data and information into all constituency groups in such a manner that they "experience" these data, feel knowledgable, empowered, and begin to accept fire management and fire ecology data and information as knowledge. Over time the intent is to see knowledge become wisdom, those long-held valued beliefs within society.

Audience Analysis—General

Who is listening? Why? Communicators adapt marketing language by referring to target marketing. But this concept does not imply one way communication. It states that you are developing messages for "targets," i.e., delivering your message to a specific audience for a specific purpose. The interaction with that targeted audience is anticipated. Questions that can guide this inquiry are:

- What are your target markets? Why?
- What characteristics (social, economic, geographic, language, life-style, behavioral, and psychographic [e.g., "people living in region X are more likely to believe...."]) can be used to identify these groups or markets?
- What are their levels of knowledge, experience, and beliefs with or about wildland fire?
- What do they value?
- How do they organize politically? Socially (i.e., family, religious, informal networks)?
- What are their preferred sources of information?
- What information sources are most valued and believed?
- How will they benefit from this information?
- What are their relations with their environment?
- How does wildland fire influence these environmental relations, perceptions of environmental and management organizations, and economic relations with the land?

Social and Psychological Data

These data include insights into conditions of individuals and groups. Social and psychological constructs may be measured in terms of perception, knowledge, skills, attitudes, status (socioeconomic, social, employment), etc. Questions that may be germane (examples only) are:

- Is the local community focused on the issue of wildland fire? Why? Why not? Implications?
- Is there a demand for information? Is the demand hidden (latent)?
- What is the perceived impact of fire on this community?
- Who are involved as communicators? Leaders?
- Who are the groups of people to be targets (schools, religious groups, industry, recreational groups such as hunters)?
- Who formally and informally leads the groups?
- Are there informal groups and leaders who do not belong to identifiable (formal) groups who must be included?
- What are the perceived risks and personal values held by communities in fire-prone ecosystems?
- What other specific social and psychological data will be needed in order to plan?

Political Data

Political data often merge with audience analysis and social and psychological data in that groups of people form and sanction processes based on the "body politic" as a means of decision making. These bodies are governed by (1) written rules (laws,

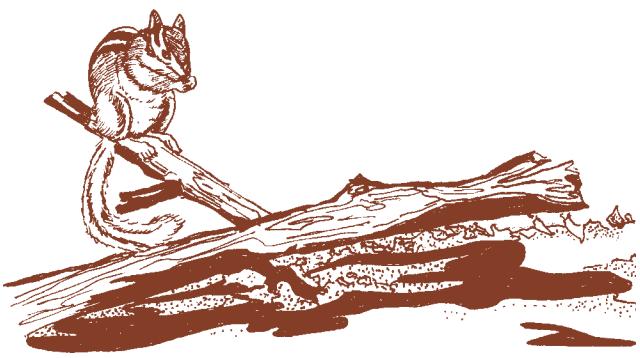
agreements, regulations), and (2) by unwritten social norms and conventions. To be effective in your understanding of the implications of political data to wildland fire management requires an insight into both.

Questions that may guide the gathering of these data are:

- What are the legal guidelines governing wildland fire management options (national, regional [e.g., airsheds], state, local)?
- Where do the mission and policies of organizations managing or affected by wildland fire complement and conflict?
- What is the role of and who are the members of nongovernment organizations, coalitions, community groups, tribes, and similar groups?
- Who are and what is the role of the opinion leaders (and how do you access them) of the informal community, i.e., those casual groups that always come together at the local gathering places?

Economic Data

- What are real and perceived economic (individual, local, and regional) impacts of wildland fire? Who has the data? Who can help you generate the data?
- How will wildland fire affect what sectors of the economy?



- How are the amenity values and impacts calculated?
- What are the lost opportunity costs?

Organization Data

- What knowledge, skill sets, and attitude (personnel) sets do you need to effectively communicate wildland fire messages?
- What financial, technical, and organizational skills are the better mix to effectively communicate within your sphere of influence?
- What are the public perceptions of the organization(s) who frame and lead the wildland fire communication efforts?
- Where multiple organizations are involved in originating the message, are there conflicts among the messages or priority of messages?
- Do organizations originating the messages vary in their mission and goals from the recipient organizations, groups, and communities?
- Have other organizations developed programs or materials about wildland fire? If so, have they been effectively utilized? Can they be applied to your situation?

Ecological Data

- What do you know about the ecological history including the historical fire regimes of the ecosystem?
- What do you know about the ecosystem in terms of genetic diversity, species composition, and communities and associations within?
- What do you know about the dynamics (permanence, diversity, and resiliency) of the ecosystem and the role of wildland fire on impacting these factors?
- What are the physical and meteorological characteristics that impact wildland fire and options for management within the ecosystem?

- Which of these data exists? What is the priority of need relating to the acquisition of these data? Who can supply required data, at what costs within what period of time? And how will you evaluate and synthesize the data provided?

Data should not be equated with knowledge or wisdom. Data only becomes information after it is synthesized within the context of the bigger questions.

Communicators often gather the best data they can and communicate "what science tells us we must do," equating data as science. "Data dumping" only baffles listeners; recipients must understand how to interpret and use data. Informed decision making is the aim of communication planning. The community of users of data and information will then determine over time what constitutes knowledge and wisdom.

II. Set Goals and Objectives

Goals are big ideas or generalized targets for wildland fire communications. Objectives are very direct statements that are assumed attainable and can be measured. To write clear communication objectives you must:

- Be clear in your understanding of the desired results of communications.
- Be realistic—the objectives must be attainable within the time frame specified.
- Have an action plan, personnel, financial resources, and evaluation skills commensurate with the task.
- Know why you are evaluating and understand how you will utilize the results to impact change.

Goals and objectives are often set in an idealistic frame. In today's shift to adaptive management, clear objectives are the bases leading to how one will adapt. Lack of attention in setting objectives for communication action is analogous to unclear prescribed fire objectives. The results from both could be conflagrations.

III. Formulate the Message

What do you have to say? Why do you need to say it? To whom? When? Where? So what? Messages about wildland fire are encyclopedic in number and complexity. The most critical task is selecting the appropriate message. Your audience is bombarded with sound, worthwhile messages. Your job is to "prescribe" the appropriate message. To do this effectively, a number of questions can be asked to help clarify the situation:

- Given the objectives of this communication plan, what are the most critical messages and what is their priority of importance?
- Given the data collected in Step I, how should the messages be developed/framed?
- What is the relationship between the message you, the communicator, deem most important and what the potential message receiver deems most important?
- How will this message impact people, agencies/organizations, and resource management?

Of course the agency or organization must select messages tied to resource needs and its mission and authority. However, the message must also be based on the recipients' needs—either overtly stated needs or latent needs which may not be so apparent. A Venn diagram approach would include: (1) the resource needs or prerequisites, (2) the sponsoring organization's needs, and (3) audience needs and wants. This approach frames a three-way test for managers' messages.

Formulation of messages is a skill. Long verbose scientific messages tend to lose their "punch."

Message formation outside the formal academy (P–graduate school) is perhaps best framed as stories or story segments as Freeman Tilden (1957) suggested:

- Relate to something within the realm of the listener.
- Reveal new and informative (valued) information.
- Provoke an emotional or behavioral response.

Without attention to telling a concise story with a theme, showing relationships among all the parts, communications as a process is often doomed to fail.

IV. Select Format and Identify Communication Channels

With detailed attention to steps I, II, and III, it is now time to select the format (e.g., fact sheet, video, slide presentation, public service announcement), and channel (e.g., public service announcement on local public access [cable] channel or a video at an ecosystem partnership meeting).

Format and channel selections are part of matching message, audience, and media. Of course there are no recipes; each ecosystem and each audience have different wildland fire informational needs. Thus consideration must be given to the following:

- Audience receiving the message—setting, group size, relationships such as friendship groups, kinship groups, business associates, or formal classes with mixed associations. What are their preferences and tastes, and what is their familiarity with media?
- Message content, purpose, level of complexity, risk factor associated with message, as well as content, style (i.e., science education, environmental theater, etc.), and length.
- Organizations' capabilities in terms of communication equipment, communications expertise, subject matter expertise, and ability to understand the socio-political and cultural context (environment) in which the message will be delivered.

Do you select a billboard or help local schools develop a wildland fire education unit? Do you create fact sheets for park visitors or press kits for the media? The message format and delivery channels are abundant and relatively inexpensive per contact.

This step links the recipient with the message originator. Poor planning means that great messages planned for the ideal audience may never get conveyed.

V. Pretest the Message

Pretesting your message is formative evaluation, i.e., you are evaluating as you form. Just as wildland fire managers often do small burns in test areas prior to conducting a series of major prescribed fires, a message pretest is the same.

Taking knowledge from steps I–IV, select a small target audience for a site pretest. Try out your data gathering, goal formulation, message development, format, and channel selection. Deliver and evaluate. What happened? What does the feedback tell you? Where do you adapt? Pretests give you the knowledge necessary to move forward.

While all of these steps may seem a waste of time, they are not. Given the amount of money required to develop and distribute something as basic as a brochure, such pretests are warranted, economically, politically, and managerially.

VI. Communicate the Message

Communicating the message involves using the knowledge gathered in steps I–V to refine the media and message for the targeted audience. The best suggestion is if you do not have in-house capabilities to produce a communication product commensurate

with the need or demand, you should seek assistance from another level in your organization having those capabilities, or contract to have the items professionally produced. In the case of professional programming, time and resources may be needed to train existing staff or to hire temporary or permanent staff. Poor quality programs or materials usually do more harm than none at all.

Given all of the knowledge collected in steps I–V, you may conclude that colleagues have developed similar materials that you can acquire permission to adapt to your situation. Although you will have gathered these data as you have planned, only your pretest will tell you what has a good chance of acceptance.

Communicating the message once it is refined means delivering it in a manner that is acceptable in content, style, format, and tone for your targeted audience. Your audience must be attracted to the message (message appeal) to the extent that they will stop and listen or read. Designing for message appeal is the responsibility of the message planners/communicators. If the audience is not receptive, it is not the audience's problem.

VII. Evaluate

You have now created a strategy that takes you from gathering data to how you will communicate the message. The last step, or in reality the first step in adaptive management, is evaluation. How well did you accomplish your objectives? What did you learn in the process? Were the objectives the appropriate objectives?

Without the knowledge we gain from evaluation, we do not understand our levels of success, we do not maximally grow from our experience, and we may repeat a mistake thinking we are repeating a success.

Evaluation is relatively complex. It is not an area to engage in lightly. Evaluation occurs before (formative), during (process), and after (outcome). Formative evaluation was called for as in pretesting the message. During the process we are to monitor each stage of the communication event. As we reach the end we engage in assessing the outcomes in relationship to our objectives. It is the learning at all three evaluation stages that leads to our modification of our communication planning, i.e., adaptive management.

To engage in evaluation requires an understanding of communication evaluation strategies. Evaluation, where in-house expertise does not exist, requires self-education and seeking assistance from education and communication evaluators from local colleges, universities, or private consultants.

Communication planning is not an option; it is a prerequisite to success.

References

National Wildfire Coordinating Group. 1992. *Strategic Communications for Wildland Fire Management: Discussion Guide* and *Strategic Communications for Wildland Fire Management: Facilitator Guide*. National Interagency Fire Center, Attn: Supply, 3833 S. Development Ave., Boise, ID 83705. http://www.nifc.gov

Tilden, F. 1957. *Interpreting Our Heritage*. Chapel Hill, NC: University of North Carolina Press.

Author: Gary W. Mullins

Interpreting Wildland Fire

Interpretation is an "education activity which aims to reveal meaning and relationships through the use of original objects; by firsthand experience and by illustrative media, rather than simply to communicate factual information" (Tilden, 1957). Tilden continues by providing principles encouraging all interpretation to relate to the participant and reveal new and interesting information which provokes a physical or mental response. Tilden, who spoke from the perspective of the theater, saw great natural and cultural resource-based stories to be told.

One of those stories is wildland fire. This story, like almost no other, captivates the audience in that it impacts every sector (natural history, social, cultural, economic, etc.) of the ecosystem in which it burns. Wildland fire flames paint images in visitors' minds and provides vast opportunity for interpretation.

Fire ecology and wildland fire management are complex topics that provide a vast array of interpretable topics. In the wildlands and wildland-urban interface zones, almost every ecosystem function impacts or is impacted by fire. Fire stories are in essence ecosystem stories, especially when interpreting fire-dependent communities. The following sections are offered to assist projects with wildland fire interpretive programs and to help instruct new employees in their program preparation.

Interpretation: A Process

Interpretation is a process; it is not content dependent. Interpretation is generally framed as part of people's leisure experience in natural or cultural resource settings. It is here that groups, most often family or friendship groups, engage in learning activities that have multiple outcomes. While the interpreter functions as a covert educator, guide, and sponsoring agency spokesperson, visitors engage in elective learning.

Formal environmental education groups, mostly homogenous groups organized by grade, are lead through curriculum exercises and appointed institution sanctions that learning has occurred. Interpretation is more open-ended, at least from the visitor's standpoint. In interpretation/nonformal environmental education activities, the visitor has no written objectives to accomplish, takes no test, and the rewards are intrinsic or of a social nature.

The interpreter comes with goals and objectives representing both the sponsoring organization's mission and message and the imperatives found in the natural and cultural resources of which they are stewards. The challenge for the interpreter is to gingerly lead this leisure audience towards a stewardship mentality—a mentality that they are informed decision makers responsible for natural and cultural resource matters.

Interpretation is perhaps best thought of as a cog in the lifelong wheel of learning. For example, Jeff and Jennifer's teacher, during their home fire safety unit in Grade 4, introduced the concepts of wildland fires, fire prevention and Smokey, and even prescribed burning. That week they saw one of the national news stories about the Mesa Verde fires and learned that fire permits the rebirth of an ecosystem. Then, that winter they saw the Discovery Channel Pictures' film "Wildfire: Feel the Heat" (1999), about wildland firefighting and wildland fire management. During the next year they saw a number of educational programs on television about wildland fire. The following summer, they visited the northern Rocky Mountains region on vacation and encountered a number of interpretive signs, evening campfire programs, and a visitor center dedicated to wildland fire. While on vacation to Yellowstone they discovered for themselves that the park was alive and well more than a decade after the fires of 1988.

Our audience is being exposed to wildland fire subject matter and is receptive to the topic. The role

of the interpreter, as Ham (1992) and others point out, is to "translate" the science behind the story. How do you interpret the chemistry and physics of fire and how do we as a nation manage fire? Probably not by entitling your evening campfire program "Wildland Fire Management Policy for the 21st Century." Instead if we use Tilden's admonitions, we seek titles and stories to which visitors can relate (e.g., "Yellowstone: Ten Years After the Fire" and "Fighting Fire with Fire").

Some basic tenets of interpretation are:

1. Interpreters are storytellers; people like stories and people learn from stories.
2. Interpreters function in a leisure setting, and visitors wish to maintain that leisure mode.
3. Interpretation is still rooted in the philosophy that Tilden presented in 1957.
4. Interpretation should be mostly educational, with substantive science, philosophy, and management messages. These must be translated, not "watered down" for the visitor.
5. Interpretive programs, literature, and other media should be thematic in nature having a central topic (e.g., wildland fire) and a recurring message throughout the program (e.g., fighting fire with fire). It is this recurring message that drives home the interpreter's objective and helps the audience stay focused on the bigger story being told.
6. Interpreters are hosts, guides, leaders, spokespersons, and covert educators. They are accepting of visitors' experiences and knowledge or the lack thereof; they are not expecting anything more than a good audience.

Interpretive resources relating to the process are plentiful. The following annotated list provides a set of useful resources:

Tilden, Freeman. 1957. *Interpreting Our Heritage*. Chapel Hill, NC: University of North Carolina Press.

Tilden presents the historical definition of interpretation and six guiding principles, each explained and illustrated with examples from national parks.

Ginder, Alison L. and E. Sue McCoy. 1985. *The Good Guide: A Sourcebook for Interpreters, Docents and Tour Guides*. Ironwood Publishing, Box 8464, Scottsdale, AZ 87252.

Written from an education psychology perspective, the book provides the noneducator and the practicing interpreter with a sound background in the science behind interpretation as well as excellent points on techniques, audience analysis, and interpretive strategies.

Machlis, Gary E. (ed.). 1986. *Interpretive Views*. National Park and Conservation Association, 1701 18th Street N.W., Washington, DC. 2009. (Out of print but found in most interpretation offices in federal resource management agencies.)

Twenty-four authors, speaking from their point of views, either from a national park, central management office, university, or private sector (concessionaires), express their ideas on the role of interpretation in national parks. The array of views can help you better understand the breadth of perspectives that exist in the role of interpretation.

Ham, Sam H. 1992. *Environmental Interpretation: A Practical Guide for People with Big Ideas and Small Budgets*. Golden, CO: North American Press. (Also available in Spanish.)

A comprehensive textbook addressing the concept of interpretation, principles, and guidelines with an extensive overview of techniques.

Beck, Larry and Ted Cable. 1998. *Interpretation for the 21st Century: Fifteen Guiding Principles for Interpreting Nature and Culture*. Champaign, IL: Sagamore Publishing.

Building on the interpretive principles of Freeman Tilden and the interpretive guide, Enos Mills, the authors present their vision of interpretation for the future. The fifteen principles range from holistic interpretation to passion for interpretation to promoting optimal experiences.

Knudson, Douglas M., Ted T. Cable, and Larry Beck. 1995. *Interpretation of Cultural and Natural Resources*. College Station, PA: Venture Publishing, Inc.

A comprehensive textbook on the who, what, when, where, how, and why of interpretation. Also included are chapters on management, personnel, evaluation, and the interpretation profession.

Michael Gross (ed.). Various Dates. *Interpreter Handbook Series*. College of Natural Resources, University of Wisconsin, Stevens Point, WI.

Faculty and students at the University of Wisconsin, Stevens Point, have created an informative handbook series addressing various aspects of interpretation.

This is by no means an exhaustive list. Numerous federal and state agencies have videotapes, printed and similar materials available for their employees. Likewise, a number of professional associations, such as the National Association for Interpretation and the North American Association for Environmental Education, provide for interpretive conferences and training opportunities.

Personal Presentations

Guide activities and other personal services are effective in responding to immediate questions when flames and smoke are in the background or visitors are experiencing a burned patchwork landscape.

During the fires in Yellowstone in 1988 the National Park Service made extensive use of roadside interpreters during the fire event. While visitors heard the mass media present how the ecosystem was being destroyed, interpreters (often staffing roadblocks) explained to visitors in a less sensational manner the depth and truth of the message. So great was the misinformation that Yellowstone National Park formed a Fire Interpretation Resource Education (FIRE) outreach team that traveled to local communities in the region to explain the impact of the fire.

Guided tours into fire impacted sites are conducted by nongovernment organizations, such as the Nature Conservancy, and by federal, state, and private resource management organizations. Such personal services are extremely important in educating clientele that fire in wildlands is often viewed only as a destructive force. With such misconceptions, many people focus only on the destruction. It is here that the interpreter, on-site or carrying the message off-site, conveys the message of the natural role of fire in managing ecosystems and the story of ecological rebirth.

Few people in our culture know that local, state, and federal agencies in Florida burn more land under prescription than any other state. Even with this extensive prescribed burning, 1998 still recorded nearly one-half million acres of Florida on fire. Who amongst our audience knows that areas not subjected to prescribed fire in the southeast are upwards of seventy times as likely to suffer from an unwanted fire, compared to areas that have been burned under prescription?

So great is the fear of fire, and so great is the attraction to fire, that substantial resources are warranted to support personal services related to

wildland fire management. Likewise, the potential for public relations problems is so great that interpreters, public affairs/information education officers, and senior leadership personnel should be available to personally interpret fire events.

Keep in mind that often the personal on-site interpretation can be a briefing for media which is then transmitted to users of mass media. Thus, it becomes necessary for us as interpreters to brief news sources in such a way that they relate to the messages and are provoked to reveal the depth/substance of the story. Thus, personal contact with media sources is critical. Supplement this contact with a comprehensive media package containing background information (fire ecology, agency policy, fire management plans, etc.), fire history/fire regime of the region, stock photos and file footage if available, and a list of contacts with names, addresses, telephone numbers, and e-mail addresses. Think of all the errors you have seen in news reporting relating to wildland fire and equip your media contacts with the data they need to potentially prevent those mistakes. Most importantly, though, is interpreting fire events in such a manner that reporters will not need to fill in the gaps of information with sensationalism and their conventional wisdom to make a good story. Wildland fire is a good story on its own, without embellishment.

Non-personal Media

Historically, federal and resource management agencies have provided wildland publications for over 50 years. Starting with Smokey Bear in 1945, a substantial effort has been maintained in wildland fire prevention. Prior to that time, only periodic information was disseminated. Even the early prescribed burns in the 1930s and 1940s in the southeastern United States were publicized. In 1976 the U.S. Forest Service published their *Forest Interpreter's Primer on Fire Management*. Other agencies' publications of that period also elevated the issue of interpretation of wildland fire.

The major push began in the late 1980s, especially in 1988–89 from the public outreach that developed as a result of the fires in the Yellowstone region.

Non-personal media that can be used to interpret wildland fire include:

- brochures
- brochure inserts
- fact sheets
- park newspapers
- books and magazines
- signage
- exhibits
- interactive compact disks
- movies and videos
- public service announcements and news releases

Since 1998 federal agencies have used all of these outlets to a greater or lesser extent.

Brochures

Brochures range in all shapes and sizes based on agency guidelines, expertise available, and immediacy of the need to convey the message. Perhaps one of the more widely distributed brochures is "Wildland Fire in the Northern Rockies," prepared by the National Park Service (GPO 1984 242-345\00041). This four-color brochure interprets the subject via text and rich graphics.

In July 1998, the National Geographic Society produced a four-color foldout magazine insert, "Natural Hazards of North America." Wildland fires are interpreted with a few of the more recent North American fires mapped, along with other natural disasters. With permission to display, the foldout could be most informative in a temporary display or as part of a bulletin board.

"Fighting Fire with Fire: Involvement of Local Communities," published by the Bureau of Land Management, is an excellent example of a very focused interpretive message delivery, as is "Landscaping in Florida with Fire in Mind" by the University of Florida Cooperative Extension Service. Numerous other brochures exist from federal, state, local, and nongovernment organizations.

With the advent of desktop publishing everyone can now produce a brochure. The interpretive publications listed earlier in this section provide guidance in interpretive message design, and an array of books are available to guide those who wish to layout and design their own publication efforts.

One of the more basic rules in brochure design is to use a grid system to help guide the layout. Also, avoid overkill with mixing font types, use relevant graphics, leave white space, and keep the message focused on a thematic message (less is more). *Creating Environmental Publications* (Zehr et al., 1990), part of the University of Wisconsin's Interpreter's Handbook Series, is a most useful guide for these and other publications. Lack of attention to details can leave a visitor with a less than desirable experience.

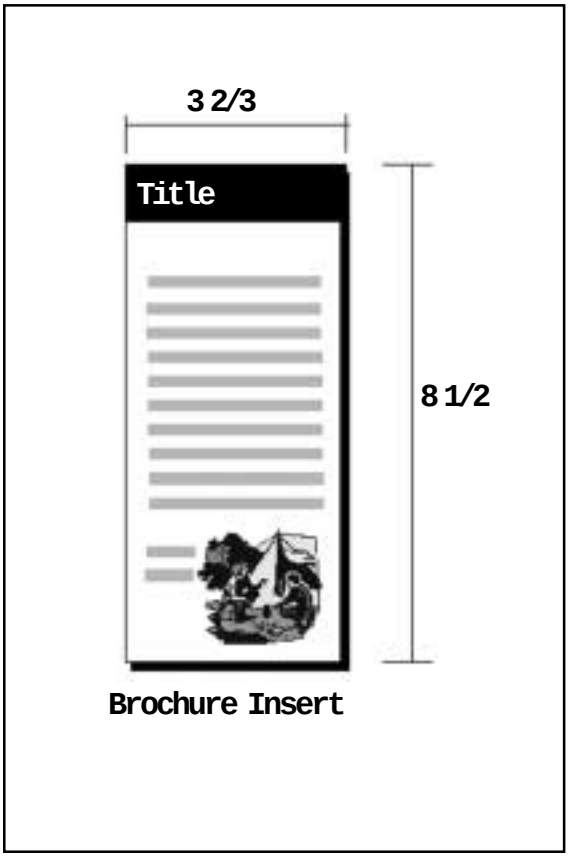
Brochure Inserts

Where brochures exist and there is a need to infuse a wildland fire message, or where the message does not warrant the development of a full brochure, an insert may suffice. Inserts are printed on card stock and are approximately the same width and length as the folded brochure. If standard width and stock can be cut in equal sizes (e.g., 8 1/2" x 11" in card stock cut into three 3 2/3" x 8 1/2" printed pieces) a significant cost savings can be had. In the example given, three brochure inserts can be printed front and back on one set of card stock with two machine cuts required in final production. Because hand stuffing is expensive, volunteers should be arranged.

Fact Sheets

Standardized headings and formats set up on an in-house computer system make generation of fact sheets more timely and responsive to needs than a few years after the fact. The National Park Service, for example, uses their black band heading with letters inset in the band, a logo placement, and a two-column text format. This format permits all agency publications to look similar, i.e., family of publication concept. The same discussion offered for brochures applies here.

All interpreters should work with their publications unit to ensure that graphic standards are met. On the other hand, each agency or organization's



publications unit should work with interpreters to provide them with computer based templates with guidelines and graphics packages so that field sites can rapidly generate fact sheets.

Books and Magazines

Since the 1988 fire season of which the greater Yellowstone fires is the most iconic, books and magazines of a variety of shapes and sizes have been spawned. For the most part, the greatest benefit of these outreach tools is the depth of the subject matter that can be presented. Conversely, the costs of production require most to be sale items, rather than an agency borne expense.

Fire: A Force of Nature by Jack De Golia (1993) is one of the more widely distributed wildland fire books. Characterized by vivid color photos and a well-interpreted story, the book is distributed widely by federal agency cooperative associations. Yellowstone National Park cooperative association and concessionaires offer a number of publications for sale such as *Yellowstone and the Fires of Change* by George Wuether (1988). Books such as Margaret Fuller's *Forest Fires* (1991), and Norman Maclean's *Young Men and Fire* (1992) serve the public education need. Among Stephen J. Pyne's wildland fire books that reach readership beyond the resource management professionals are *America's Fires* (1997) and *World Fire: The Culture of Fire on Earth* (1998). Coloring books such as the USDA and National Association of State Forester's "Mark Trail Tells How Prescribed Fire Can Be Helpful in Southern Ecosystem" fill a most important communication niche.

Because of the time and expense associated with writing, designing, producing, and distributing these types of publications, a team of expertise is required. If existing publications do not fill your communication needs, exploring options with individuals and organizations, such as a federal agency or cooperating associations, is recommended.

Signage

Extensive use is made of individual wildland fire interpretive signs and wayside signs. Perhaps the Northern Rocky Mountain area, and in particular the federal and state lands in the greater Yellowstone region, have the highest density of wildland fire signage.

The options of graphic design and layout expand with each new generation of computers and programs. Likewise the technology for production, visual clarity, and durability of outdoor interpretive signage are making rapid advances.

Each land management organization has its methods, policies, and means for planning and producing interpretive signage. Most encourage adhering to the following guidelines:

- meets a communication objective,
- has concise wording,
- is highly visual,
- is high quality,
- is durable, and
- has limited intrusion on the landscape, physically and visually

For individuals looking for assistance with signage, the National Association for Interpretation publishes a partial list of companies available to assist with signage. Also, local sign and graphic design firms may be able to assist. Regardless of who actually produces the sign, the ultimate responsibility for crafting the message text and selecting visuals rests with the interpreter.

The fields of graphic design and communications publish numerous books, internet sites, and other self-help materials. Books such as *Designing Signs, Trails and Wayside Exhibits* (Trapp, et al., 1994), speak directly to the issue of interpretive signage.

Exhibits

Interpretive exhibits relating to wildland fire have begun to blossom in the past decade. Again, the Yellowstone region fires jump-started the wide-scale use of media for communicating wildland fire messages; included in that media are exhibits. Perhaps one of the more extensive exhibits is the visitor center in Yellowstone National Park dedicated to wildland fire. Here the visitor encounters the messages, firefighting paraphernalia, and scenes associated with wildland fire and prescribed fire. Its intent is to help visitors move beyond the first impression left by charred vegetation and incomplete or sensational news stories that often do not interpret the full message.

These and other exhibits tend to adhere to the following guidelines:

- Exhibits must fulfill a purpose and help meet specific interactive objectives.
- Design exhibits so visitors can view and comprehend them quickly; minimize text and use attractive graphics. Interactivity by means of computers and other digital media tends to hold visitor attention longer than more static exhibits.
- Look for alternatives to permanent exhibits unless visitor flow is moderate to heavy and there is a limited number of return visitors. Flexibility is the key to being able to adjust the messages and media to changing issues and audiences.

Some of the major negative aspects of exhibits have been the costs of permanent ones or the size and complexity of temporary exhibits and the costs to ship them.

Creating exhibits can be expensive, time consuming, and are not a panacea for meeting all interpretive needs. Where in-house exhibit capabilities and experience are lacking, consultation with colleagues who have developed exhibits is warranted.

The National Park Service has a design package for a mobile Discovery exhibit unit. Here the National Park Service has sought to develop a portable exhibit that is relatively inexpensive yet meets exhibit design standards. Furthermore, the subject matter can be changed; in the first exhibit module design, wildland fire was the topic. Contact Harpers Ferry Design through the web site http://www.nps.gov/discover/ for further information.

Interactive Compact Disks

Drop the CD in the computer and the simulation begins. To the younger generation the computer is the medium of choice. As costs of equipment and CD development are reduced, this medium and internet resources will continue to replace a portion of the current print and exhibit media. Even now, touch screen computers are replacing more traditional exhibits. The communications appeal is that now what was once considered a "non-personal" or "cold" medium can become more interactive, adding a warm touch.

CD-ROMs such as "Wildfire" developed by America MPC Research, Inc. (1997) permit the user to explore an array of wildland fire topics. Released in 1999, a Bureau of Land Management project coordinated by Pat Durland (BLM/National Interagency Fire Center, Boise, Idaho) is one of the first complex wildland fire CDs. The Florida State University's Interactive Media Science Project and the U.S. Department of the Interior—BLM developed the resource entitled, "Burning Issues." This CD "lets students take an EcoTour of a southern pine ecosystem, visit the shrub/steppe ecosystem of Idaho, explore a ponderosa pine ecosystem in the

foothills of the Rocky Mountains and examine the chaparral in America's southwest." To order "Burning Issues" contact Florida State University, C2200 Center, Tallahassee, FL 32306-2641; telephone (850) 644-0707; or visit http://imsp.fsu.edu/.

CDs are novel and relatively inexpensive per user contact. As in other interpretive materials, the medium (technology) cannot overshadow the message. Ultimately it is the responsibility of the interpreter/ecological communicator to develop the thematic story based on clear, concise objectives. Without such guidance we run the risk of substituting novelty for substance. Colleagues who have experience with this medium's development should be contacted prior to initiating your first CD development project.

Movies and Videos

In addition to videos, a number of television and theater releases are now educating the public about wildland fire. Discovery Channel's "Raging Planet" series includes one program on wildland fires. Here the science and spectacular nature of wildland fire and prescribed fire are vividly documented. More impressive, though, is the 1999 release of Discovery Pictures IMAX® film "Wildfire Feel the Heat," which captures the drama, emotion, danger, and professionalism associated with fighting and managing wildland fire. The case is made that certain ecosystems have always burned and always will burn. Another point made is the role of prescribed fire. Discovery produced the film in consultation with the National Interagency Fire Center and other wildland fire professionals from around the world.

The showing of wildland fire movies or documentaries on television or in the theatre, or the printing of a special wildland fire section in a local newspaper provides an educational opportunity. Agency personnel can build on these events by arranging for:

- A companion display at the theater.
- A special program or display at the visitor center or community center.
- Special environmental education programs at local schools.

Some television stations, newspapers, and advertisements for upcoming theater presentations can include announcements of special companion programs presented by your resource management agency. The involvement of private sector programming in communicating natural resource management messages, such as wildland fire, greatly improves the interpreter's chance of message receptivity and understanding by visitors and community members.

Public Service Announcements and News Releases

Public service announcements (PSAs) and news releases are effective forms of media with which to convey important messages about wildland fire in your community. Knowing how to approach the writing and submitting of a PSA or news release can increase your chances of getting your message heard.

PSAs

What is a PSA? "Usually the PSA is a short announcement of 10, 20, 30, or 60 seconds on radio or television, or advertisement-like placements of various sizes in a newspaper or magazine. Unlike advertising, however, the time or space is not paid for by the sponsor, but rather is donated by the medium in which it appears." (Fazio and Gilbert, 1982).

Public service announcements can be written and prepared for both radio and television release.

Radio is a medium not to be overlooked, as it is the primary mode of mass communication in the United States, and it is a good way to reach people in rural areas (*Public Affairs Tips for More Effective Communication with the Public: Getting the Message Across with Radio*).

There are many reasons to write a PSA for your wildland fire message, including prevention strategies, current fire warnings, and notification of upcoming events in the community regarding wildland fire education. Your communication plan should include the types of messages your agency wishes to convey, and plan accordingly, taking unexpected events into consideration.

But how do you get your PSA accepted for airing by a radio or television station? The following are some helpful tips to aid in this process, many of which can be applied to both television and radio.

- Different radio stations have different requirements for PSA writing and submittal. Therefore, calling the station in advance for such requirements is an appropriate first step (*Public Affairs Tips for More Effective Communication with the Public: Getting the Message Across with Radio*). Getting the requirements in advance is likely to save you time and energy in the long-run. When you call, ask who is in charge of PSAs and try to speak with that person directly to get the proper requirements.

- One basic rule for writing PSAs for radio is "tell them you are going to tell them . . . tell them . . . tell them you told them. "*Public Affairs Tips for More Effective Communication with the Public: Getting the Message Across with Radio* offers examples on how to carry this rule into fruition in your writing.

- When submitting the copy of your PSA to a radio station, your job is to make it as clear and easy to read as possible, as on-air talent will usually be the ones to deliver your message. To aid in this process, type your copy, either double or triple-spaced, on one side of the paper, leaving generous margins. Additionally, using bond paper will reduce background paper noise on the air (*Public Affairs Tips for More Effective Communication with the Public: Getting the Message Across with Radio*).

- In writing your PSA for radio, keep the text brief and accurate, while capturing listeners' attention and motivating the audience. (Fazio and Gilbert, 1982).

- You may use nontraditional punctuation in your radio or television PSA copy, making it easier for on-air talent to read aloud. For example, using dashes (—) and dots (. . .) can indicate to the reader when pauses should be inserted into the dialogue. (Fazio and Gilbert, 1982).

- Sound effects, if used appropriately, can enhance the PSA and capture listener attention, after all, "radio *is* sound" (Fazio and Gilbert, 1982). For example, the sounds of forests burning have been used in the Smokey Bear campaign (Fazio and Gilbert, 1982).

- A criterion used to select PSAs is relevance to the local community (Fazio and Gilbert, 1982); therefore, if your fire message is relevant to your local area, this might increase the chances of selection.

- Consult *Public Relations and Communications for Natural Resource Managers* (Fazio and Gilbert, 1982) for more information and useful tips for

writing your PSAs and improving the chances for acceptance.

News Releases

The U.S. Fish and Wildlife Service's publication, *Public Affairs Tips for More Effective Communication*, provides useful tips for writing news releases. Among them are *Ten Steps to a Professional News Release*. The bullet points below are the exact titles of each of these ten steps (pp. 3–4):

1. Try to write a release that will catch the attention of the editor or reporter who opens the envelope.
2. Tell the most important part of the story in the lead (the first paragraph) by incorporating the "five Ws."
3. After the lead, elaborate on details in descending order of importance.
4. Brevity is the heart of the news business.
5. Keep the presentation simple and in accepted style.
6. Be sure to include the name and phone number of the person the media should call for more information.
7. Stick to the facts without speculating or giving opinion.
8. Don't use bureaucratic and scientific words, phrases, cliches, slang, and Service terminology.
9. Attribute news to a responsible, personal source.
10. Some stories require a follow-up.

Consult the above source for additional details and explanation on each of the ten bullet points.

You can access national and regional news releases from U.S. Fish and Wildlife on the Internet at http://news.fws.gov/; there are archives of news releases as well at this web site. Additionally, you can access the Department of Interior Selected Press Releases on the Internet as well at http://www.doi.gov/news/. These web sites may provide you with examples on press releases about wildland fire.

Do not underestimate the potential that PSAs and news releases can have in spreading your wildland fire message. A little effort toward writing succinct, direct, and engaging messages can result in more informed target audiences.

References

De Golia, J. 1993. *Fire: A Force of Nature*. Las Vegas, NV: KC Publications.

Fazio, J.R. and D.L Gilbert. 1982. *Public Relations and Communications for Natural Resource Managers*. Dubuque, IA: Kendall/Hunt Publishing Co.

Fuller, M. 1991. *Forest Fires*. New York: John Wiley & Sons.

Ham, S.H. 1992. *Environmental Interpretation: A Practical Guide for People with Big Ideas and Small Budgets*. Golden, CO: North American Press.

Maclean, N. 1992. *Young Men and Fire*. Chicago, IL: University of Chicago Press.

Mullins, G.W. 1999. *Wildfire: Feel the Heat*. Bethesda, MD: Discovery Channel Pictures Inc. (IMAX Film).

National Wildfire Coordinating Group. 1992. *Strategic Communications for Wildland Fire Management: Discussion Guide*.

National Wildfire Coordinating Group. 1992. *Strategic Communications for Wildland Fire Management: Facilitator Guide*.

Pyne, S.J. 1997. *America's Fires*. A Forest Society Publication.

Pyne, S.J. 1998. *World Fire: The Culture of Fire on Earth*. Seattle, WA: University of Washington Press.

Tilden, F. 1957. *Interpreting Our Heritage*. Chapel Hill, NC: University of North Carolina Press.

Trapp, S. et al. 1994. *Designing Signs, Trails and Wayside Exhibits*. Stevens Point, WI: University of Wisconsin-Stevens Point Foundation Press Inc.

USDA and National Association of State Foresters. "Mark Trail Tells How Prescribed Fire Can Be Helpful in Southern Ecosystem" (coloring book).

U.S. Fish and Wildlife Service, Office of Public Affairs. (no date). *Public AffairsTips for More Effective Communication with the Public: Getting the Message Across with Radio*. Washington, DC: U.S. Dept. of the Interior.

U.S. Fish and Wildlife Servivce, Office of Public Affairs. (no date). *Public Affairs Tips for More Effective Communication with the Public: How to Write a News Release*. Washington, DC: U.S. Dept. of the Interior.

Wuether, G. 1988. *Yellowstone and the Fires of Change*. Salt Lake City, UT: Haggis House Publications, Inc.

Zehr, J., M. Gross and R. Zimmerman. 1990. *Creating Environmental Publications*. Stevens Point, WI: University of Wisconsin—Stevens Point Foundation Press, Inc.

Authors: Gary W. Mullins and Gina Zwerling

The Role of Media Packets in Public Information and Education

Wildland fires consume public attention due to their potential to harm life and property. Fires burning close to homes can produce such intense heat that the homes are damaged. Smoke from a fire can ruin property, generate a bad smell, and deposit ashes capable of affecting human health. Thick smoke may also provide driving or flying hazards.

Because of these unwanted risks, supplemented by the pervasive Smokey Bear fire prevention messages, many citizens perceive wildland fires as being "bad" and therefore advocate suppressing all fire, including prescribed burning. In view of the fact that prescribed burning is necessary in many settings to provide for healthy ecosystems and to prevent disastrous wildland fires by reducing fuel loads, a public information and education strategy is needed to inform the public about the differences between "good" prescribed burning and "bad" uncontrolled wildland fires.

Public information and education regarding prescribed fire is a form of risk communication. Research in the area of risk communication has shown that people often hold unrealistic perspectives and demonstrate unreasonable behaviors toward environmental hazards such as wildland fires. Individual opposition to prescribed burns often occurs due to the rational or irrational perception of the risks involved.

Peter Sandman (1993) has developed the idea that "Risk = Hazard + Outrage." An outraged public tends to focus primarily on the sensational side of an issue, therefore the facts of a potentially hazardous situation are not processed clearly. Sandman has discovered that the public pays more attention to outrage than hazard, even when they know the difference, and that outraged people do not pay much attention to data providing the facts.

In order to reduce outrage in the case of prescribed burning, management professionals should truthfully acknowledge possible risks that could occur as a result of prescribed fires. Sandman (1993) states, "The only way to build credibility is to acknowledge problems dramatically enough that you catch the public's attention." The author advises that public concerns should be brought out into the open. The author reports that it is the concerns that stakeholders are not voicing that cause the most problems for management. Sandman then goes on to suggest concerns be addressed subtly, such as: "I wonder if anyone is worried about …" or "I talked with a neighbor last week who was worried about …".

Media relations can be an important part of a public information and education strategy to relieve a potential negative reaction and present the facts of prescribed burning. Media relations can be thought of as fostering professional relationships with journalists and other media personnel. These relationships are very beneficial when seeking to inform the public about an upcoming prescribed burn or a wildland fire in progress. The media are very important and accepted lines of communication to the public. Reaching out to journalists and educating them at the start may result in factual and enlightened reporting in the event of an unpopular prescribed burn.

Before attempting to build these relationships, it is best to create a media relations plan. Steps in a media relations plan include:

1. determining your overall media goals,
2. determining the tone and content of the message(s) to be sent, and
3. determining the groups of people you want to reach through the media. For example, is your media target the community at large? Or, do you prefer to reach a subset of the community?

Once you have an idea of your organization's identity and what information you want your public to understand, it is time to contact the appropriate media.

To identify those journalists and others who might have an interest in your story, read the newspapers, listen to your radio stations, and browse through locally published magazines and newsletters. You may also want to research the reference books containing information on media outlets, the audience size, and contact information. These references include *Bacon's Publicity Checker*, *Editor & Publisher International Yearbook*, *BPI Media Services*, *Writer's Market*, *Gebbie Press*, and the *Broadcasting & Cable Marketplace*. You might also explore media connections through local civic organizations that have expressed interest in wildland fire management activities.

Once you have identified probable contacts, the best way to communicate with these individuals is through face-to-face meetings. Media press releases, press conferences, and media (press) kits should follow. Media professionals are often very busy and have to make choices about the stories they tell based on competing priorities. Therefore, be persistent, yet considerate in your contact. When speaking with your media contact, it will often be helpful to suggest different angles the story may take. Even if they are unable to use your story immediately, suggest using it in the future. When sending out materials to these individuals, always remember to provide contact information, including a name, phone number, and address.

Media kits are a very useful information tool to use in advance of fire seasons when educating a public about prescribed burning or when the wildland fire seasons occur. A media kit is a packet of various informative materials that is given to the press for them to use when creating and telling your story. It usually consists of informational papers held within a pocket folder, and can be either glossy or simple, as long as it is attention-getting and the material is presented in an attractive, informative style. Ease of use, basic facts (even bulleted) and focused messages are the hallmarks of a good kit.

The contents of the media kit you provide will depend on your audience and the event you want to describe. For example, during times of prescribed burning you may want to educate the affected public about the need for fire and the benefit it will bring to the local ecosystem. In this event, the *Communicator's Guide to Wildland Fire* contains several brief, informative pieces you could include concerning the role of prescribed fire in wildland fire management, including information on fire-dependent ecosystems and the use of wildland fire as a tool for stewardship, among others.

In general, media kits contain the following basic information produced either through your own organization or one specializing in wildland fire management:

- A business card with the name of a contact person and where he or she can be reached, both during and after business hours.
- A background sheet with the vision and mission of the organization, and a description of its role in wildland fire management. If your organiza-

tion has any promotional items, such as stickers or bookmarks, include them.

- A brochure providing a visual description of the local ecosystem including maps. The information you provide may include a description of the ecosystem, and the ecological and economic benefits it provides the community. Many individuals may not have visited the area and may not be familiar with its value.
- A question and answer sheet regarding prescribed fire. Include information describing what a prescribed fire is, who will be conducting it, and how the burn will be carried out in that particular area. Attach success stories of recent prescribed burns. Provide the names of contact persons and directions on how and when to reach them with questions.
- Press clippings of previous coverage (only two of the best stories are needed).
- A brochure regarding the use of fire in the ecosystem.
- One or more brochures regarding fire safety.
- Many educators have created lesson plans and activities to teach youth about fire and prescribed burning. Include two or three that are related to your ecosystem.
- Standard black and white photos, if available.
- Video clips of fire scenes for television.
- Other special communication pieces relevant to your ecosystem.

The key to creating a media kit is to know your audience, and what they need to know. Also know your media outlet, reporters, their objectives, the angle on resource management stories they often take, and the socio-political context that will frame the media's story.

If your budget allows, you may choose to include a video or color slides of prescribed burning in the ecosystem, with a written accompaniment. (If a video is used, remember that there is a need for

written media releases.) In the event that you should include some of these larger items, you might wish to use a small, fitted box to hold your materials rather than using pocket folders. Again, it is important that the materials be arranged neatly and in such a way that the user can easily find the information needed.

Developing media relations and providing useful media kits can be an excellent way to build support for prescribed burning and wildland fire management in your community. And, should a wildland fire occur, any media support you have established prior to this time will now be helpful in getting necessary safety information to the public, as well as providing for public understanding of fire management. In the event of an emergency, a media kit with complete information will allow you to remain focused on containing the wildland fire, while providing the press with correct information.

References

Sandman, P.M. 1993. *Responding to Community Outrage: Strategies for Effective Risk Communication*. Fairfax, VA: American Industrial Hygiene Association.

Author: Elizabeth Hall

Risk Communication and Wildland Fire

Interpreting wildland fire ecology begins with a solid understanding of science and how it works, but it often intersects with public policy, economics, environmental aesthetics, and human values. Encouraging public understanding of wildland fire ecology concepts and implications in both environmental and social domains is no easy task. Balancing science, policy, and human values fairly and accurately as a communicator requires solid understanding of not only the content but the manner of presentation.

Issues that pertain to environmental and health issues can be controversial in the eyes of the public, particularly when sensitive values are at stake. The science and policies of wildland fire ecology often pose many difficulties when communicators must inform the public about fire, its effects, and its uses. Techniques for effectively handling sensitive environmental and health issues have emerged as the special communication genre known as risk communication. The concept of risk communication not only addresses quantifiable risk, but also the public's perception of that risk, which may or may not be in sync with the "real" risk (Sandman, 1993; West et al., 1995). For ecological communicators, risk communication is often a matter of interpreting complex scientific issues, and communicating to the public about their potential impacts. The real difficulty in science and risk communication tends to be a lack of common understanding among the lay-public of how science and technology function (Sandman, 1993; West et al., 1995).

Uncertainty in scientific research is intrinsic and generally understood by professional scientists in terms of statistical probabilities, measurement limitations, computer modeling simplifications, etc. Debate over facts, figures, and predictions within the scientific community is not only common but a critical part of the knowledge construction process (Bazerman, 1988; Gross, 1990; Myers, 1990). However, this aspect of the scientific process is not well-known nor understood by the lay-public. Scientists are often expected to quickly and accurately produce definitive answers and solutions. To accept that differences of opinion and uncertainty are inherent within the scientific community is not very palatable, especially when a person may trust his or her health, wealth, and environmental appreciation to the "expert" advice of scientists. Thus, if information appears incomplete or uncertain, the public tends to mistrust it, as well as its source.

The ecological communicator must bridge this gap between the scientific and nonscientific communities and provide a common ground for understanding and trust. The goal of the communicator is to make meaning as clear as possible to foster a more accurate understanding of a risk, and thus more appropriate behaviors regarding that risk.

Ideally, a communicator would like to convince an audience that the information being presented is the most accurate representation of the "truth available." The construction of knowledge in the context of incomplete or uncertain science puts primacy on the rhetorical attributes of communication (Bazerman, 1988; Gross, 1990; Myers, 1990). The structure of the language itself can dramatically affect the way the message is received. Basic principles of such language can be categorized into three main rhetorical concepts: audience, structure, and tone.

Audience

Before addressing any risk, a communicator must know his or her audience well. Most often, a specific audience is being targeted. These audiences may range from elementary school students to a group of seasoned politicians or land developers. Knowing the attributes of the audience will dictate what type of message to send, and what type of language to use.

Most often the message being sent is meant to persuade the audience in some way (Bazerman, 1988; Gross, 1990; Myers, 1990). A communicator dealing with risk-oriented material most often wishes to persuade the audience that what is being reported is worth knowing, and should be considered important to understand accurately and act upon appropriately. Persuasive messages are a means of gaining an audience's trust and guiding them toward informed decisions.

Structure

Interpretation requires streamlining and condensing a large amount of complex information. Most readers or listeners understand and appreciate the synopsis, but may remain leery if information appears to be missing, or facts seem to be misrepresented. Thus, it is critical to inform the audience of significant deletions, alterations, or limitations. Knowing the audience well will help in anticipating how a particular audience may respond to such conditions.

Part of the communicator's job involves translating technical terminology into more understandable language. The level of sophistication of the language used should be appropriate for the intended audience. For most audiences, the communicator should not assume any technical background in the subject. Thus, explanations of even basic scientific terms may be necessary. Some degree of specificity may be lost when converting technical descriptions into more general terms, but it is crucial to keep the audience's frustration level to a minimum with thoughtful word choices.

A communicator must also choose from a seemingly endless array of points to discuss and content to present. Focusing the scope of the topic however, usually with a guiding thesis or main point (recurring message), is an important step toward keeping the material manageable and helping the audience see the communicator's point of view.

A well-organized structure is also imperative in a text, especially when complex new material is being presented. Ideas and concepts should flow together in an orderly fashion. It is helpful to link new information with concepts that are already known by the audience, thus providing a reference point by which the audience can grasp the new concept and connect it with something familiar.

The proper use of transition between unfamiliar and difficult information will also help to foster better comprehension of difficult technical or conceptual content (Brown and Yule, 1983). Consider transitions to be a "road map" for the piece, guiding the audience through unfamiliar territory by referencing familiar information. This may require some overlap and some degree of overt direction within a piece, including statements like "next," "as a result of," "because of this," etc. These kinds of transitions not only guide the audience but help reinforce causal or temporal relationships among the concepts that the communicator wants the audience to understand.

One particular linguistic concept that can be useful for presenting scientific and technical material is called the given/new principle (Brown and Yule, 1983). Information that is not easy to grasp should come only after ample lead-ins describing the context in which the new information sits. New details, nomenclature, and concepts are often preceded by more familiar, and often repeated ideas.

This building of new knowledge on the shoulders of existing knowledge is a powerful tool for communicators to convey new information logically and coherently. Presenting new material only after considerable familiar information has been shared adds tremendous persuasive weight to new theories by placing the information in an established and well-defined sequence of knowledge.

Tone

Tone is a stylistic attribute of risk communication that is not necessarily as obvious as the rhetorical issues of audience and structure, but is just as important. This concept is not easy to categorize but generally is a stance toward the audience or an attitude toward the subject matter. When presenting risk-oriented material, an impartial tone and deference to the larger community of scientists, policy makers, and the public should be projected. An ecological communicator should remain objective at all times. If direct reference to a source seems appropriate, then use citations and provide a reference list at the end. This helps to legitimize the message and provide options for further investigation if a reader is interested in obtaining more information.

Using passive voice can also help to place information and events at a distance from the communicator, and focus attention appropriately on the subject itself. An announcement about the subject of a sentence made after a passive verb construction tends to sound like an established and accepted statement, rather than a bold new conjecture (Bazerman, 1988; Myers, 1990). Again this is a desirable effect for a communication style that hinges on a belief in the objective reporting of information in order to gain understanding and acceptance among the audience.

Another quality of effective communications that helps to maintain an objective tone is called "hedging" (Myers, 1990). Essentially, the communicator can choose cautious phrases, such as "this study suggests" or "it appears" to maintain a conservative, objective stance when presenting new ideas. This technique does not reflect hesitancy on the part of the communicator; rather, it has come to be the appropriate tone when presenting a new scientific claim that may not be established as solid fact. Hedging presents a more accurate representation of an issue, acknowledging the inherent uncertainty of science (Myers, 1990).

Recognizing and dispelling audience-held misconceptions about an issue requires the communicator to know the characteristics of his or her audience well, to construct the message appropriately for the audience, and to project a proper tone. This is not an easy task, to which many communicators would attest. The misconception should be presented clearly and respectfully, followed by the "new" concept, and why it is more accurate. Explaining why the misconception should be replaced by new information helps reinforce the point and persuade the audience to adopt the new perspective. Fields such as wildland fire ecology often must deal with clashes between science and public perception. Knowing how and why these clashes occur, and how to address them will prove useful in influencing public awareness and decision making.

References

Bazerman, C. 1988. *Shaping Written Knowledge: The Genre and Activity of Experimental Article in Science*. Madison, WI: University of Wisconsin Press.

Brown, G. and G. Yule. 1983. *Discourse Analysis*. Cambridge, MA: Cambridge University Press.

Gross, A.G. 1990. *The Rhetoric of Science*. Cambridge, MA: Harvard University Press.

Myers, G. 1990. *Writing Biology: Texts in the Social Construction of Scientific Knowledge*. Madison, WI: University of Wisconsin Press.

Sandman, P.M. 1993. *Responding to Community Outrage: Strategies for Effective Risk Communication*. Fairfax, VA: American Industrial Hygiene Association.

West, B., P.M. Sandman, and M.R. Greenberg. 1995. *The Reporter's Environmental Handbook*. New Brunswick, NJ: Rutgers University Press.

Author: Jeffrey R. Comey